

# ***Sealing systems for pneumatics***

***Special solutions***



# Precision sealing systems for pneumatic applications

Parker seals for pneumatics are the result of decades of experience in profile and compound development. To the pneumatic design engineer they open up a host of new approaches and design techniques such as friction-optimised sealing lip geometries that preserve the lubricating film.

Application engineers can draw on a complete range of sealing systems for pneumatic cylinders:

- Rod seals and wipers
- Single- and double-acting piston seals
- Complete pistons with and without mechanical dampers
- Cushioning seals and
- Combined seal/wiper rings for ISO and short-stroke cylinders

Parker has developed a range of compounds specifically for pneumatic application requirements. In addition to low friction and low wear these compounds give extremely long

service life. As a design engineer you are able to choose the material best suiting your application and specific requirements from our extensive compound offering. For detailed information on these standard solutions please refer to our “Pneumatic Seals” catalogue.

For special applications Parker offers a broad product range as well:

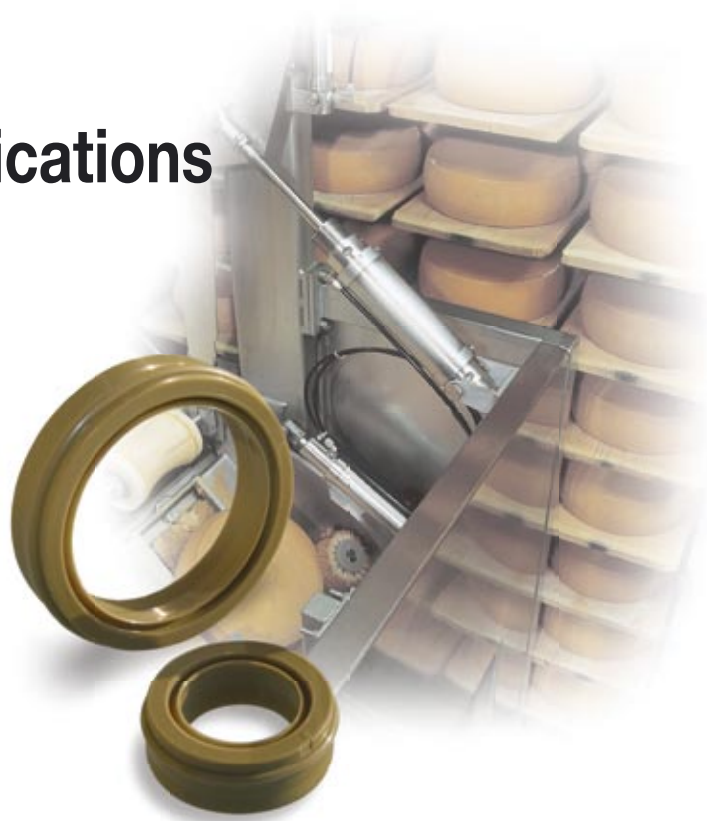
- Special compounds and seal geometries designed for extreme temperatures, aggressive media or heavily contaminated environments
- Sealing solutions for torsion-protected cylinders
- Rubber/textile (non-woven) seals for rodless cylinders

Drawing on many years of experience in the field of valve sealing systems – particularly with spool valves – Parker is able to offer the seal best suiting customer-specific valve systems.

Our application engineers will recommend the solution best meeting your need. Please contact us!

## Food industry applications

Sealing elements for pneumatic cylinders used in the food industry have to be compatible with foodstuffs as well as being resistant to acids, alkaline solutions and different types of cleaning agents. Parker’s P5500 polyurethane compound meets all of these requirements and is extremely abrasion-resistant as well. It conforms to FDA requirements and is resistant to most acids and alkaline solutions. The seal/wiper elements fit into the installation spaces for EU and EL profiles.



# Chemical industry

For applications involving extreme temperature and media resistance requirements, such as those found in the chemical industry, Parker has developed the E8 Flexiseal<sup>®</sup>, a sealing concept consisting of PTFE (polytetrafluoroethylene) and an elastic element. The design of the spring-loaded PTFE seal/wiper element is based on the time-tested E8 profile for pneumatics, thus fitting in the established EU installation space. It offers outstanding media and temperature resistance (up to 200 °C) and there is no tendency towards stick-slip. In addition the E8 Flexiseal<sup>®</sup> has low friction values and does not contaminate contacting media. All materials are FDA-conformant. Storage period is unlimited.



# For extreme temperatures

Pneumatic cylinders are also used in extreme temperature ranges. Depending on the particular requirements, our standard seal profiles can be produced from special compounds. For low-temperature applications down to -40 °C NBR and polyurethane compounds are available. For high-temperature applications Parker has developed FKM compounds for dynamic service at permanent temperatures of up to 150 °C. For temperatures of up to 200 °C we recommend the E8 Flexiseal<sup>®</sup>. The widest temperature range between -35 and +120 °C is covered by a special HNBR compound.



# Torsion-protected cylinders

Standard pneumatic cylinders are increasingly often fitted with torsion protection to perform simple pick-and-place tasks. For such applications Parker offers a standard solution for both flattened piston rods and oval pistons.

As a rod sealing and wiper combination the EF and ET seal profiles from abrasion-resistant polyurethane compounds, which fit in the installation spaces of the proven EU and EL profiles, are available. (Regarding the source of the matching piston rods, please enquire).



For oval pistons the double-acting OY piston seal was developed. Like the Z5, it includes the guiding element and is fitted to the piston by simple snap-assembly. The OY piston rod is made from our time-tested N3578 NBR compound and guarantees low friction as well as long service life.



# Rodless cylinders

Rodless cylinders require seals which operate with minimum stick-slip even at low speeds. Moreover, they have to give effective sealing performance of the metallic or plastic sealing band. For these applications Parker has developed a special seal profile meeting both requirements due to an externally located non-woven material. The PR sealing element is available in diameters 25, 32, 40, 50 and 60.



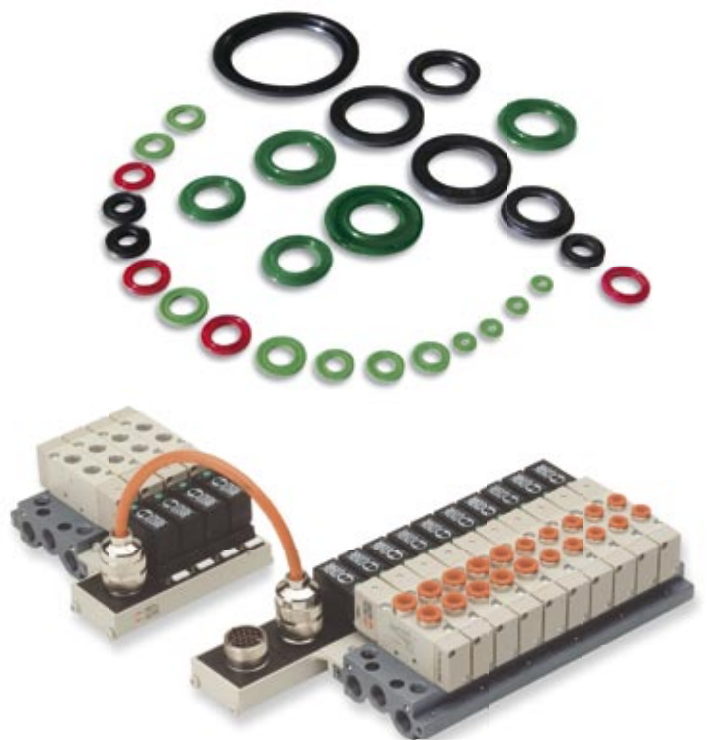
# For piston rods exposed to contamination

Some pneumatic cylinders are used in applications that are prone to abrasive or adhesive contamination of the piston rods by salt or ice crystals, adhesives, solder splashes etc. This makes special requirements on the wiping performance of the sealing solution. For such applications Parker has developed a seal/wiper element that protects the cylinder from contamination for longer service life. In addition, this element fits into the installation spaces of the proven EU seal/wiper element, thus enabling the use of standard cylinders. To handle different degrees of contamination Parker offers two versions, which differ in terms of wiping performance and friction values. For use in more aggressive media we offer our hydrolytically stable P5001 polyurethane compound.



# Sealing systems for spool valves

Parker draws on many years of experience in designing sealing systems for pneumatic spool valves and a wide range of proven sealing solutions. These solutions are specifically adapted to the requirements of the particular application in terms of geometry, installation dimensions and friction behaviour. The standard material for valve seals is our P5070 polyurethane compound, which, in addition to outstanding abrasion resistance, low compression set and expanded temperature range, also offers excellent hydrolytic stability and resistance to aggressive media.



## Seal Group Europe Packing Division

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### Sealing technology <sup>PLUS</sup>

Parker addresses the diversity of customer needs with an equally diverse offering of market- and requirements-driven solutions: from the proven standard product to the tailored new and/or system development – designed and produced using advanced in-house compound, engineering, testing and process technology:

- Compound development in our own chemical lab (accredited test lab)
- Computer-aided product development (Finite Elements Analysis) shortens development cycles
- Extensive physical lab
- PHast Seal: rapid prototyping for tests or urgent spare part requirements

Our commitment, know-how and highly capable technical infrastructure enables us to provide quick, reliable and cost-effective product developments based on your individual needs and specifications.



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